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INTERNATIONAL STANDARD 183

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Plastics — Qualitative evaluation of the bleeding of colorants

Matières plastiques — Évaluation qualitative de l'exsudation des colorants

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FOREWORD

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO Member Bodies). The work of developing International Standards is carried out through ISO Technical Committees. Every Member Body interested in a subject for which a Technical Committee has been set up has the right to be represented on that Committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work.

Draft International Standards adopted by the Technical Committees are circulated to the Member Bodies for approval before their acceptance as International Standards by the ISO Council.

Prior to 1972, the results of the work of the Technical Committees were published as ISO Recommendations; these documents are now in the process of being transformed into International Standards. As part of this process, Technical Committee ISO/TC 61 has reviewed ISO Recommendation R 183 and found it technically suitable for transformation. International Standard ISO 183 therefore replaces ISO Recommendation R 183-1961 to which it is technically identical.

ISO Recommendation R 183 was approved by the Member Bodies of the following countries :

Austria	India	Spain
Belgium	Israel	Sweden
Czechoslovakia	Italy	Switzerland
Finland	Japan	Turkey
France	Netherlands	United Kingdom
Germany	Portugal	U.S.A.
Hungary	Romania	U.S.S.R.

No Member Body expressed disapproval of the Recommendation.

No Member Body disapproved the transformation of ISO/R 183 into an International Standard.

Printed in Switzerland

Plastics — Qualitative evaluation of the bleeding of colorants

1 SCOPE AND FIELD OF APPLICATION

This International Standards specifies a method for the qualitative evaluation of the tendency of some colouring materials to "bleed off" or to migrate from a plastic material into other materials, if they are in close contact with each other.

If the properties of different colorants have to be compared, they should be compounded with a given plastic in a suitable standardized formulation.

2 REFERENCES

ISO 293, *Plastics — Compression moulding test specimens of thermoplastic materials.*

ISO 294, *Plastics — Injection moulding test specimens of thermoplastic materials.*

ISO 295, *Plastics — Compression moulding test specimens of thermosetting materials.*

3 DEFINITION

For the purpose of this International Standard the following definition applies :

colour bleeding : The migration of a dye present in a plastic material from the material itself into any other material, when they are in close contact.

This "bleeding" may be due

a) to exudation of the colouring matter because of the low compatibility of the colouring matter with the plastic material, or

b) to the solubility of the colouring matter in a plasticizer with migrating tendencies.

The colour bleeding depends also on the nature of the other material (acceptor) which therefore needs to be exactly defined.

In general this effect is accelerated by increase in temperature.

4 PRINCIPLE

Maintenance of a test specimen in contact under pressure with specified acceptors at an elevated temperature, the nature of the acceptor and the test temperature being stated in the material specification or being agreed between the interested parties for the plastic material in question. For PVC-based materials 50 °C is specified.

5 APPARATUS

5.1 Air oven capable of maintaining a temperature of 50 °C or other agreed temperature, with a tolerance of ± 2 °C.

5.2 Plate glass pieces with perfectly flat surfaces, 75 mm square and 5 mm thick.

5.3 Acceptor materials, such as :

5.3.1 White filter paper, smooth, 75 mm square. In case of disagreement, the quality of the paper shall be agreed between purchaser and vendor.

5.3.2 Plasticized polyvinyl chloride sheet, clear, colourless, in pieces 75 mm square, 1 mm thick formulated as follows :

- polyvinyl chloride (suspension polymer) 100 parts by mass;
- di-2-ethylhexyl phthalate 65 parts by mass;
- calcium stearate 1 part by mass.

The sheet shall be moulded (see ISO 293) or calendered at a suitable temperature, in order to obtain a completely fused, clear, colourless material.

6 TEST SPECIMENS

6.1 The test specimen shall be in the form of a 50 mm square, cut directly from a sheet of the material to be tested. The thickness is of no importance.

6.2 If the material to be tested is an extrusion or moulding compound in granules or in chips, a sheet shall be prepared from it by a suitable moulding method, and the specimen shall be cut from the sheet thus obtained.

NOTE — Attention is drawn to the provisions of ISO 293, ISO 294 and ISO 295.

6.3 The method of preparing the test specimen shall be well defined for each type of plastic material, inasmuch as the thermal treatment and the subsequent transformation of the material (for example the "gelatinization" or "fusion" of polyvinyl chloride) may have some influence on the colour bleeding.

7 PROCEDURE

7.1 Place the test specimen on a piece of PVC sheet (5.3.2); cover it with a 75 mm square of dry white filter paper (5.3.1); place the assembly thus obtained between two pieces of the plate glass (5.2).

NOTE — The test specimens and the absorbent sheets must be brought into close contact; this is assured by the weight of the upper glass plate; it is not, therefore, permissible to place several specimens between larger plates.

7.2 Place the assembly in the air oven (5.1) maintained at the agreed temperature with a tolerance of ± 2 °C (see clause 4).

7.3 After 72 ± 1 h remove the assembly from the oven, separate its parts and examine the square piece of PVC sheet (5.3.2) and the filter paper (5.3.1) for staining or marking.

Examine the PVC sheet (5.3.2) first over a white and then over a black background.

8 TEST REPORT

The report shall include the following particulars :

a) reference to this International Standard;

b) complete identification of the material tested, including the formulation of the compound and the method of preparing the specimens;

c) complete identification of the acceptor material;

d) the test temperature;

e) indication of the presence of staining or marking on the filter paper and on the PVC sheet, with an approximate description, such as : none — moderate — excessive;

f) observations on any change in appearance of the surfaces, both of the specimen and of the absorbing materials, which were in contact during the test;

g) date of test.